Shayan Huda Chowdhury

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EDUCATION **Columbia University, New York, NY: B.A. Computer Science & Human Rights** Expected Graduation: 2025

Previous: Stuyvesant High School, New York, NY Graduation: 2019

EXPERIENCE

Research Assistant, Fifer Lab, Columbia University Irving Medical Center, New York August 2021 – present

- Building self-supervised machine learning models for clinical usage in detecting stress patterns in electrocardiogram (ECG) data for early diagnosis and prevention of adverse fetal health outcomes like stillbirths and miscarriages
- Developed a novel signal processing algorithm to separate out maternal and fetal ECG signals from abdominal ECG data
- Presented at the 44th Int'l IEEE Engineering in Medicine & Biology Conference (EMBC) in Glasgow, Scotland as the lead author of a publication

Executive Director & Founder, Reach4Help, Montréal, Canada March 2020 – present

- Leading Reach4Help, a tech nonprofit connecting people in need to trusted volunteer help across 38+ countries
- Managing a team of 30 to design, build and provide support for open-source software for grassroots nonprofit organizations
- Developed a need-matching web platform to coordinate food banks, clothing drives and vaccinations for 6K+ low-income communities
- Developed a global map of 10K+ aid organizations, serving as the backbone for logistical coordination of volunteer help through the COVID-19 pandemic, Mexican earthquake, California wildfires, Ukrainian invasion, Bangladesh floods, etc.
- Raised $120K from Google for Nonprofits and another $106K in in-kind donations from Google, Slack, Algolia, etc.
- Collaborated with the World Economic Forum's Global Shapers in Europe to raise €170K+ for Ukraine medical aid relief
- Collaborated with BRAC, JAAGO Foundation, Kandari and other Bangladeshi NGOs to serve 58K+ households affected by summer 2022 floods
- Invited to present "The Roadmap to Resources: How Reach4Help Leads People in Need" at Google HQ in Mountain View, California

Global Shaper & Climate Activist, World Economic Forum, Geneva, Switzerland August 2021 – present

- Selected as the youngest Global Shaper by the World Economic Forum for my work on Reach4Help
- Coordinated SupportUkraineNow (SUN) projects involving refugee aid, fundraising and mental health support as U.S. co-ambassador
- Won a grant by the Climate Reality Project for leading a project to tackle lack of youth climate change engagement in Bangladesh
- Invited to speak at the Climate Changemakers Digital Innovation for Youth Conference at the UN Headquarters in New York City

Lead Data Analyst, a2i Programme, ICT Ministry / Cabinet Division / UNDP Bangladesh March 2020 – January 2022

- Appointed as a member of the National COVID-19 Policy Dashboard Committee of the Bangladesh Ministries of Health and IT
- Developed COVID-19 data collection tools and modeled its spread to inform policy on lockdowns, public health comms and healthcare decisions
- Analyzed data on tests, cases, deaths, hospitalizations, and mobility for the Directorate General of Health Services, Institute of Epidemiology, ICDDR,B and with epidemiologists and data scientists from Columbia, MIT, Harvard and UC Berkeley

Software Developer, Migrant Nation Foundation, The Netherlands / UNDP Bangladesh October 2019 – June 2020

- Developed a pioneering "Right to Work" e-Commerce marketplace for Rohingya refugees with UNDP, UNHCR, and WFP in Bangladesh to enable them to produce and sell products to consumers worldwide on Amazon, Etsy, Alibaba, and other international markets
- Built a mobile app currently being used in the camps to pay hourly wages in accordance with the ILO's decent work practices

Research Intern, Frank Lab: Nobel Laureate Joachim Frank, Columbia University, New York September 2018 – November 2019

- Created the highest resolution 3D reconstruction of 40S eukaryotic ribosome subunit to reverse engineer the mechanism of protein synthesis
- Fine-tuned bioinformatics tools to increase the accuracy of protein detection and reconstruction in noisy electron microscope images to a resolution of 1.5 Å (a hundred-millionth of a centimeter)

Team Leader, Google Mentorship Program, Google, New York October 2018 – June 2019

- Led a Stuyvesant HS team on a machine learning project to understand human emotions from voice intonations using LSTMs for the purposes of developing digital personal assistants for administrative use, medical applications, speech disabilities, etc.

Data Science Intern, New York Genome Center and Weill Cornell Medical College, New York June 2017 – February 2019

- Selected by Stand Up to Cancer for studying cancer evolution to determine differences between cancerous and non-cancerous cells

PROGRAMMING LANGUAGES: Python, R, JavaScript/TypeScript, MATLAB, Java, C#, C++, Rust, Dart, SQL

SELECTED RESEARCH PUBLICATIONS

- **Chowdhury S.,** Frasch M. G, Wu H., Lucchini M., Shuffrey L. C., Sania A., Malette C., Odendaal H. J., Myers M. M., Fifer W. P, Pini N. (2022). A Novel Method for the Extraction of Fetal ECG Signals from Wearable Devices. *44th Int'l IEEE* Engineering in *Medicine & Bio Conf. (EMBC).*
- Mahmud, A. S., **Chowdhury, S.**, Sojib, K. H., Chowdhury, A., Quader, M. T., Paul, S., ... & Buckee, C. O. (2021). Participatory syndromic surveillance as a tool for tracking COVID-19 in Bangladesh. *Epidemics*, 35, 100462.
- Chadwick, F., Clark, J., **Chowdhury, S.**, … & Sania, A. (2022). Combining Rapid Antigen Testing and Syndromic Surveillance Improves Sensitivity and Specificity of COVID-19 Detection: A Community-Based Prospective Diagnostic Study. *Nature Communications*, 13, 2877.
- Ferguson E. A., Brum, E., Chowdhury, A., **Chowdhury, S.**, Kundegorski, M., … & Hampson, K. (2022). Modelling how face masks and symptoms-based quarantine synergistically and cost-effectively reduce SARS-CoV-2 transmission in Bangladesh. Epidemics, 40, 100592.
- Brum, E., Saha, S., Sania, …, **Chowdhury, S.**, Haddou, Y., Ferguson, E., Kundegorski, M., Purno, N., Tasneem, M., … Hampson, K. (2021). Surging COVID-19 in Bangladesh driven by B.1.351 variant. *Preprint for Lancet Global Health*.

HONORS AND AWARDS

- Columbia University Distinguished New Student Scholarship Winner 2022
- Daniel Bergstein Memorial Scholarship Winner 2019
- AP Scholar with Distinction Award Winner 2019
- Gates Scholarship Finalist 2019
- Elizabeth Piper Scholarship Winner 2018
- MIT INSPIRE: "Differences in Short-term Memory Capacities in Alzheimer's Patients with Different Demographics" Semi-finalist 2018

SKILLS AND INTERESTS

- *Clubs and Societies:* President of Research Club, National Latin Honor Society (Maxima Cum Laude 2017), Stuyvesant Alumni Mentoring Program
- *Languages/Skills:* English & Bangla (fluent), Latin & Spanish (int.), Spartans Wrestling Team, Taekwondo (Red belt)